Preface

The Environmental Cooperative Agreement Program. It's the Wisconsin Idea. Progressive, forward thinking, seeking better government, improving accountability, and informing and involving our citizens.

By proposing to enter into an Environmental Cooperative Agreement with the Wisconsin Department of Natural Resources, Wisconsin Electric Power Company hopes to integrate the Wisconsin Idea with the state's legacy of environmental leadership. This follows the earlier path of Wisconsin Electric – an industry pioneer – by successfully developing and building the world's first pulverized coal-fired power plants, and for over 25 years holding the world's record in electric generation efficiency. More recently, Wisconsin Electric initiated one of the nation's most successful residential renewable energy programs.

It's also forward looking, helping ensure that today's actions enhance the opportunities of our grandchildren and their grandchildren. We want to improve the efficiency of our power plants by optimizing the generation of electricity with our existing capital stock while minimizing the use of natural resources. This will also reduce potential emissions per unit of electricity created. Additionally, we seek to recover and reuse resources that may not have been utilized completely in the past, thus avoiding the mining of coal or use of other land resources. The company is trying to make the use of natural resources a circular rather than a linear path. Most importantly, we want to be more accessible and accountable to our customers and the communities in which we operate.

Kristine Krause
Vice President, Fossil Operations

To protect and enhance our natural resources
To work with people
  to understand each other's views
  and to carry out the public will
And in this partnership
  consider the future
  and generations to follow

Excerpts from the
DNR Mission Statement

We will accept accountability for our environmental performance and through out actions will demonstrate high social integrity
We will ensure compliance with applicable environmental requirements at our operations…and continuously improve our environmental performance
We will participate with government and others in creating responsible laws and regulations to safeguard the environment, community and workplace

Excerpts from the
Wisconsin Electric Environmental Commitment

Summary

This document provides a detailed overview of Wisconsin Electric Power Company's proposal to enter the Pleasant Prairie Power Plant into an Environmental Cooperative Agreement with the Wisconsin Department of Natural Resources. The objective of this document is to provide a comprehensive description of Wisconsin Electric's proposal in a non-technical manner. As such, it is intended to facilitate discussion about the proposed Agreement.

Five major sections comprise this overview document.

1. Cooperative Agreement Program Background, including information about the Pleasant Prairie Power Plant, the surrounding community, and commitments being made by the company.
2. Benefits of the proposed agreement, including those affecting the natural, social, and economic environments
3. Addressing Potential Questions and Concerns, including several issues raised by interested parties during the debate on the enabling legislation, as well as during the development of the Cooperative Agreement Program by the Department of Natural Resources.
4. Proposal Details, outlining both the commitments by Wisconsin Electric and specific details of the flexibility requested under the agreement.
5. Community and Stakeholder Involvement, including those steps the company will take to provide meaningful information to the surrounding community and seek increased involvement by interested parties and other stakeholders.

Contents

Cooperative Agreement Program Background

The Cooperative Agreement Program

The Environmental Cooperative Agreement Program is a pilot program designed to evaluate innovative environmental regulatory approaches.[1] Governor Thompson proposed the program as part of the 1997-1999 budget, and it was passed by the Legislature in 1997.

Within the Cooperative Agreement Program the Wisconsin Department of Natural Resources (DNR) is authorized to enter into five year agreements with up to ten different owners or operators of permitted facilities. The overall goal of the program is to explore alternative approaches to the present environmental regulatory system.

The basic premise of the Cooperative Agreement Program is simple: Superior environmental performance by the operator of the facility should be recognized with some degree of flexibility beyond that allowed by the present environmental regulatory system. Superior environmental performance can be demonstrated in several ways, including, 1) reduced use of energy, 2) pollution prevention, 3) reduced releases of pollutants to the environment, 4) improved monitoring and environmental response systems, and, 5) greater awareness by and involvement of the local community and other interested parties. By establishing a five year pilot program, the Legislature is allowing facilities such as the Pleasant Prairie Power Plant to test alternative ways of complying with existing environmental regulations while exploring how to maximize its overall energy and environmental efficiency.

Facility and Area Background

The Pleasant Prairie Power Plant

The Pleasant Prairie Power Plant (otherwise known within Wisconsin Electric as "P4") is the largest electric generating plant in Wisconsin. Designed to burn low-sulfur coal to reduce sulfur dioxide emissions, the facility occupies approximately 425 acres of land in the Town of Pleasant Prairie, five miles west of Lake Michigan in Kenosha County.

The plant consists of two units, each consisting of a boiler, turbine and electric generator. Unit 1 was put into service in 1980, while Unit 2 entered service in 1985. P4 is Wisconsin Electric's main baseload plant, operating 24 hours per day throughout the year with the exception of maintenance outages that are typically scheduled once every 12 to 24 months.[2] The plant burns low-sulfur pulverized coal delivered to the plant from the Powder River Basin in Wyoming via unit trains owned by Wisconsin Electric.[3] At maximum load the plant may burn 800 tons of coal per hour. Coal delivered to the plant is stored in an outdoor coal pile having a maximum capacity of 1.4 million tons. This provides on-site coal capacity in the event of mine production or transportation problems.

Natural gas and No. 2 fuel oil also are used by the plant during initial start-up of the boilers when they have been out of service and as a supplemental fuel.

Coal used by the plant is ground to an extremely fine powder in ten pulverizers

[1] See more information on the Environmental Cooperative Agreement Program at the Wisconsin DNR's website at *www.dnr.state.wi.us/org/caer/eccp*

[2] The Pleasant Prairie plant is Wisconsin Electric's most highly utilized plant. The proposed Cooperative Agreement does not increase the utilization of the plant, but rather addresses issues of efficiency.

[3] In an effort to improve transportation efficiency, the coal cars used in these unit trains are constructed of aluminum to reduce weight.

before being injected into the boilers. Each boiler is approximately 20 stories high. Furnace temperatures in the boiler may reach 2,000 degrees Fahrenheit, creating steam in the boiler tubes at 995 degrees Fahrenheit and at pressures up to 1,990 pounds per inch. From the boilers the steam passes through a high efficiency turbine that is connected to the generator.

Boiler controls are closely monitored to assure optimal conditions for fuel efficiency in steam generation and emissions control. Exhaust gases from the boilers are routed through electrostatic precipitators that remove more than 99.79 percent of the fly ash. Heavier bottom ash is collected at the base of the boiler with a separate ash system. All ash generated by the plant is used commercially. After passing through the air pollution control systems, the exhaust gases are routed to a common 450-foot stack. All emissions to the atmosphere are continually monitored and strictly regulated under a permit issued by the DNR and approved by the U.S. Environmental Protection Agency (EPA).

After extracting the maximum amount of energy from the steam in the turbines, the exhaust steam is routed through cooling condensers before being re-injected into the boiler. To get rid of this unrecoverable heat, a maximum of 400,000 gallons of water per minute are pumped through each of the two circular cooling towers located north of the plant. Each of these mechanical draft towers is 300 feet in diameter and 75 feet tall, and contain tens of thousands of small deflectors that break up the water into very fine droplets that dissipate heat to the atmosphere. The most obvious reminder of the plant's presence (especially on a cold day) is the water vapor plume rising from the cooling towers. Makeup water for the evaporation losses is pumped from Lake Michigan at the rate of 3,000-4,000 gallons per minute for each cooling tower.

Wastewaters produced by the plant are collected and treated in accordance with a permit issued by the DNR. These wastewaters include stormwater runoff from the coal pile, wash waters from inside the plant, and other minor waste streams that have generally been in contact with the coal or combustion by-products (i.e., ash). A separate wastewater treatment building and three lined wastewater treatment ponds are located north of the plant near the cooling towers. After treatment and testing, wastewater is discharged to Jerome Creek near the north end of the plant complex.

The Surrounding Community

The Pleasant Prairie Power Plant is located within the Village of Pleasant Prairie in eastern Kenosha County approximately five miles west of Lake Michigan, two miles east of Interstate 94, and about one mile south of Highway 50.

The Kenosha area was settled in 1835. The City of Kenosha was incorporated as a city in 1850. Today Kenosha is the home of several large employers, including the headquarters for Snap-On, Inc., Jockey International, and G. Leblanc Corporation The city is also the site of a major Daimler-Chrysler Corporation manufacturing facility. Since 1990, Kenosha's population has grown approximately 8 percent, and with a population of over 86,000 residents, it is the fourth largest city in the state.

The Village of Pleasant Prairie, where P4 is located, is situated immediately west of the City of Kenosha, and traditionally has been a rural agricultural area. However, the past 15 years have been characterized by a significant shift in the local economy with the development of industrial and residential land uses on the outskirts of Kenosha and adjacent to I-94. Two major outlet malls are located near the freeway, and LakeView Corporate Park has attracted approximately 40 new businesses to the area immediately

south of P4. Even with this commercial development, the Village of Pleasant Prairie has acted to preserve natural areas such as the Chiwaukee Prairie and Des Plaines River Floodplain, and develop recreation areas surrounding Lake Andrea and Prairie Springs Park.

Wisconsin Electric's Commitments

Required by the Cooperative Agreement Program

Participation in the Cooperative Agreement Program requires that Wisconsin Electric commit to several actions at P4. These baseline commitments include the following.

Measurable Improvements in Environmental Performance

The goal of the Cooperative Agreement Program is to achieve superior environmental performance. To demonstrate this, Wisconsin Electric will commit to seek and report measurable improvements in environmental performance. Wisconsin Electric has identified several measures in its application, and will report these to the DNR and interested parties on at least an annual basis. These improvements will be utilized as part of the overall evaluation of the Cooperative Agreement Program by the DNR, Legislature and interested parties. [See *The Proposal Details* section below.]

Pollution Prevention

The plant staff at P4 will commit to practicing pollution prevention, or "P2". Basic tenets of P2 include:

- Reduce – Reducing the use of raw materials (e.g., coal, natural gas, fuel oil) or other products used at the plant.
- Reuse – Utilizing potential waste streams for other processes
- Recycle – Converting a potential waste stream into more or new products for some future use.

From a broad picture view at a coal-fired power plant, such as P4, this means maximizing the electrical energy generated from each unit of coal burned in the boiler. It also means maximizing the volume of ash that is beneficially used. At a more detailed level, P2 requires the facility to examine all other material uses and the potential generation of waste. These latter items may include used lubricants, solvents, scrap packaging, and other minor materials used as part of the plant's operation.

Environmental Management System

Wisconsin Electric is committed to implementing and documenting a formal environmental management system (EMS) based on the ISO 14001 standard.[4] Implementation must be completed within one year of entering into the program.

Key components of a formal EMS include:

- Identifying and communicating the facility's environmental policy, objectives and targets
- Identifying individual staff environmental responsibilities and authority
- Environmental training
- Environmental monitoring
- Corrective, preventive and emergency planning and response
- Recordkeeping

[4] ISO 14001 is an internationally recognized standard issued by the International Organization for Standardization, and is being increasingly adopted by both U.S. and foreign corporations. Examples of companies that adopted EMS's in conformance to this standard include IBM, Ford, Intel and Honda.

- Internal and external communication of environmental information
- Periodic audits
- Periodic reviews by senior management.

A basic premise of a formal EMS is that it sets up a management framework and process for periodic evaluation of environmental performance. In doing so it helps facility staff identify potential areas of system improvement that may consequently reduce the environmental impact of the plant's operation. Over time, this cycle of self-evaluation followed by improvements will manifest itself as a continuous improvement process. This continuous improvement cycle has the potential of reducing the plant's environmental impacts more significantly (and hopefully more efficiently) than the existing regulatory system. Just as important, this improvement cycle will become internalized into the mindset of each employee and the overall management of the plant rather than being forced by an external set of regulations, mandates and standards. Finally, the EMS will provide for self-correction when nonconforming performance is detected by monitoring, audits, and management review components of the EMS.

Wisconsin Electric and P4 already have in place the key components of an EMS as part of our on-going compliant operation of the plant. Under the agreement the facility will document these environmental management activities, and improve those areas that do not fully conform to the ISO 14001 standard. Follow-up training also will occur as part of this process. Documentation of the plant's EMS will be made available to the DNR and interested parties.

Baseline Review

Wisconsin Electric will conduct a complete environmental compliance review of P4 within 180 days of formally initiating the Cooperative Agreement. This review will examine the facility's compliance in all key environmental areas, including:

- Air quality
- Water and wastewater
- Solid and hazardous waste
- Emergency planning and spill prevention
- Community right-to-know requirements.

Results of the assessment will be communicated to the DNR and interested parties. If any areas of noncompliance are found, the P4 staff will take corrective action within 90 days of completing the assessment. The company may request an extension of this period if there are extenuating circumstances preventing staff from taking immediate corrective.

Wisconsin Electric already conducts periodic compliance audits at its operating facilities. As early as 1997, representatives from the DNR and the EPA were invited to observe a detailed audit of the plants continuous air quality monitoring systems.[5]

In addition to the compliance audit, Wisconsin Electric also will concurrently review the conformance of the plant's EMS to the recognized standard. Potential areas of improvement will be identified for follow up action.

Stakeholder and Interested Parties Involvement

As a participant in the Cooperative Agreement Program, Wisconsin Electric will seek the input and involvement of key stakeholders and interested parties. These are expected to include citizens and other representatives from the surrounding Village of Pleasant Prairie and Kenosha areas, as well as potential regional and statewide

[5] Representatives from both EPA headquarters and the Chicago regional EPA office, along with DNR staff observed all or part of the audit.

groups that have an interest in the Program or the specific action plan for P4.

More specific information about the company's plans for informing and involving these and other individuals and groups is outlined in the section entitled *Community and Stakeholder Involvement*.

Commitments Beyond the Requirements

In addition to the basic requirements of the Cooperative Agreement statute, Wisconsin Electric also is committing to the following actions. These actions provide additional benefits both to the plant, the environment and surrounding community.

Mercury Demonstration Testing and Research

One of the issues surrounding the combustion of coal is the potential for release of very trace amounts of mercury present in the coal. Recent proposals by the DNR and others have prompted Wisconsin Electric to more closely examine the presence and behavior of coal-borne mercury within the boiler and downstream air pollution systems. This issue becomes more complex with the installation of SCR's and other potential air pollution control technologies.

Consequently, the company is committing to perform research on the presence and behavior of mercury within utility boilers and air pollution control equipment. This will include field tests at P4. Emphasis will focus on the various forms of mercury in the coal and how it may be transformed and captured under various operating and pollution control scenarios.

Environmental Management Information System

As plant operating systems, boilers, air pollution control technologies and environmental requirements become more complex, a keystone to operating both efficiently and in compliance with regulations is the availability and management of information.

To optimize the capture, compilation and utilization of the large volume of environmental data continuously generated by the plant, Wisconsin Electric is committing to install a broad, robust environmental management information system (EMIS). Plantware 32®, developed by Essential Technologies, Inc. will be installed at P4 to improve the use of this information.[6]

The EMIS will assist in the efficient collection, calculation, documentation, and integration of environmental data with overall plant operations, and support the preparation of both internal and external reports. This will support a higher assurance of compliance at the plant, and support improved environmental performance.

Supplier EMS Audits

The Pleasant Prairie plant utilizes products and services provided by outside suppliers. Many of these products and services present their own potential risk to the environment, as well as certain financial and other risks to Wisconsin Electric if these products and services are not properly utilized or conducted, respectively.

To address the environmental aspects of these products and services, Wisconsin Electric is committing to perform EMS audits of its key suppliers that may present significant environmental impacts to the plant or surrounding environment. The ISO 14001 standard will be the protocol utilized by the company.

[6] Additional information on PlantWare 32 can be found at Essential Technologies, Inc.'s website, *www.essentech.com/ehs/*

Potential benefits of this activity include reduced environmental and financial risks for Wisconsin Electric, as well as improved environmental awareness and management, and pollution prevention by the company's suppliers. There also will be a decreased risk to the environment as a result of improved supplier practices.

EPRI Study on Continuous Particulate Matter Monitors

Wisconsin Electric will commit to participate with four manufacturers in the evaluation of a new generation of continuous particulate matter monitors. Several studies have been conducted on such monitors in the past with varying degrees of success and accuracy. At the present time particulate emissions from major air sources are continuously read using an indirect method involving opacity monitors.

A three month evaluation period will be conducted. A formal evaluation report will be prepared by EPRI[7] and be made available to the DNR and EPA.

[7] EPRI (formerly known as the Electric Power Research Institute) represents a consortium of electric utilities across the nation that have pooled their research and development funding for shared research on a variety of topics, many of which are related to environmental quality.

BENEFITS

Wisconsin Electric is entering into the Cooperative Agreement Program with the objective of meeting both the statutory goals of the program and at the same time seeking improvements in the *overall* environment. This includes the natural environment, the social environment, and the economic environment.

Benefits for the Natural Environment

Reduced Emissions Per Unit of Electricity Generated

A long-term goal of Wisconsin Electric's proposed actions within the Cooperative Agreement Program is to reduce the amount of emissions (to water, air and land) per unit of electricity generated. Using both existing and potential future technologies, and more flexible and enhanced operating schemes, the plant will seek new ways to reduce these emissions.

Existing monitoring systems will support the tracking and reporting of this performance measure. Progress toward this overall goal will be reported to the DNR and interested parties.

Reduction in this normalized emission level would benefit both the environment as well as reducing the potential environmental risk and waste required to be managed by the company.

More Efficient Generation

By having the flexibility to rapidly test and install new technologies, make efficiency improvements, and perform other maintenance projects that enhance overall plant productivity, Wisconsin Electric hopes to make P4 more efficient in the use of fossil fuel to generate electrical energy.

Success in achieving this objective means reduced use of natural resources (including coal, water, and energy for extracting and transporting coal to the plant) per unit of electricity generated. This also may have an economic benefit as reflected in the cost of electricity delivered to our customers. Indirectly, this affects the state's competitiveness to retain and attract businesses.

Recovery of Energy and Stored Materials

One of the elements of Wisconsin Electric's proposal is to recover the energy present in the coal combustion by-products stored in the company's landfills.

Not all of Wisconsin Electric's coal-fired power plants have been as efficient as P4 (our newest coal plant) in converting coal to electrical energy. Combustion processes in plants built and operated in earlier eras were only able to extract a portion of the energy in the coal. A portion of the energy in the coal was not released during combustion in these older plants' boilers and was left entrained in the fly and bottom ash created by these plants. Consequently, the fly and bottom ash in these landfills contain energy that can be utilized by the P4 boilers.

Wisconsin Electric is proposing to remove ash from company landfills, mix it with coal injected into the P4 boilers, and recover the energy. The ash will be used as fuel. [Actually, some of this ash qualifies as coal according to ASTM and other standard analyses for coal.]

Coal combustion by-products stored in the P4 landfill contain almost no energy content and are agglomerated into sand to gravel size particles because of the high lime contents in this coal ash. These combustion by-products can be crushed and screened to yield an aggregate suitable for base material under foundation slabs and pavement areas.

The environmental benefits include better utilization of coal purchased years ago, reduction in the amount of new coal required, additional commercial quality mineral resources for construction, and restoration of acreage now used for landfills. [See the section entitled *Flexibility Requested* below.]

Reduced Long-Term Risks to Soil and Groundwater

One of the direct benefits to both the environment and the community by removing and recovering the stored energy in our landfills is the decreased long term risks of potential soil and groundwater contamination. While modern landfills are designed to minimize the potential for release of stored materials (or their chemical components) to surrounding soil or groundwater, there is always some degree of risk. It is for this reason that the DNR requires long-term groundwater monitoring and maintenance of a landfill cover long after a landfill is closed.[8] Removing the ash from these landfills for construction products eliminates this risk, in addition to preserving natural material resources and capturing the stored energy as described above.

Research and Development

By conducting demonstration and testing projects at P4, the overall level of environmental knowledge and understanding will increase both for Wisconsin Electric and other companies. As noted above, testing and research will be conducted on the specific characteristics and behavior of mercury and the operating characteristics of continuous particulate matter monitors. Other demonstration and testing of air pollution control or other technologies also may be conducted in an effort to reduce plant emissions or improve efficiency. Eventual operational or physical changes at P4 will support the goal of measurable improvements in environmental performance.

Benefits for the Community and Stakeholders

The Cooperative Agreement legislation passed in 1997 addresses several objectives specific to communities and interested stakeholders (or the social environment). These include:

- Encouraging public participation by interested persons
- Improving the usefulness of environmental information provided to the public
- Increasing access to environmental information by the public and interested parties
- Encouraging key stakeholders and the facility to consult with each other in seeking environmental improvements.

The Cooperative Agreement proposed by Wisconsin Electric meets these objectives as specifically described below.

Access to Information

Wisconsin Electric will increase both the availability, understandability and meaningfulness of environmental performance information regarding P4. While much of the plant's environmental

[8] Long-term monitoring may extend for 30 years after a landfill is closed.

performance data are available already to the public from the DNR and EPA under the Freedom of Information Act, the company will offer this and other information in several more usable formats, including:

- Informational fact sheets
- Internet postings, including a specific page on the Wisconsin Electric internet site dedicated to P4 and the Cooperative Agreement
- Informational meetings and tours at the plant
- Presentations and visits to interested groups wanting to know more about the plant and the agreement.

Types of information that will be made available will include:

- Progress on the status of the agreement, including status of review and negotiations by the DNR and EPA
- Baseline environmental performance of the plant
- Significant findings from audits and resulting corrective action
- Normalized emissions from the plant
- Proposed changes in plant operation to increase energy efficiency and/or environmental performance
- Administrative savings potentially realized by the company and regulatory agencies.

Annual performance summaries to the DNR (as required by the agreement) also will be made available to interested parties and stakeholders.

Wisconsin Electric's objective in this effort is to increase the community's understanding of P4 operations and its environmental performance.

Opportunity to Have Input

Communication with interested parties and stakeholders will be circular rather than linear; plant management will solicit feedback on the information provided as part of this agreement. Wisconsin Electric's goal is to forge a real, informed trust with the local community, interested parties and key stakeholders.

Specific actions the company will undertake to reach this goal will include:

- Information meetings and forums sponsored by the plant
- Tours and open houses
- Periodic mailings or notices
- Plant leadership making itself available to answer questions and respond to feedback.

A community advisory panel (CAP) will be formed from interested parties and other community members solicited by the facility. Hopefully representing a cross-section of the local community, the CAP will provide a more formal venue to seek provide feedback on the plant's proposed environmental and efficiency improvements. The CAP will be maintained throughout the period of the Cooperative Agreement.

Efficient Electrical Generation and Rates

Wisconsin Electric has two key objectives within the Cooperative Agreement:

- Improve environmental performance through increased operational flexibility
- Increase overall operational efficiency of the plant in its ability to convert fuel to electricity.

These two objectives are complementary; improvements in one should result in improvements to the other. Over the longer term such improvements also can have an additive effect: More efficient generation can maintain the competitiveness of the facility, which in turn increases the potential for subsequent generation efficiency and environmental performance improvements.

Consequently, both the natural and economic environments can benefit.

Benefits for the Plant and Wisconsin Electric

Environmental Flexibility

A key benefit to Wisconsin Electric as a result of the Cooperative Agreement is the ability to operate and maintain P4 in a more flexible manner than afforded by the existing environmental regulatory system. This is one of the key goals of the Cooperative Agreement Program, as the statute passed by the Legislature instructed the DNR to, "grant owners and operators of facilities greater flexibility than would otherwise be allowed".

The flexibility requested by Wisconsin Electric falls into four primary categories:

- Alternative monitoring and enhanced corrective action
- Reduced reporting and decreased administrative expenses
- Permit streamlining, and
- Recovery and combustion of ash stored in the company's landfills.

Flexibility in these areas would increase the operating efficiency of the plant and have benefits to the natural, economic and social environments as described above.
More detailed information on each of these items is presented in the section entitled, *Proposal Details, Flexibility Requested*, below.

Reduced Risk

Allowing Wisconsin Electric to proceed with several of the flexibility opportunities will reduce both environmental risks and long-term financial risks for the company. As noted above, recovering the ash from the landfills will reduce potential long-term risks to soil and groundwater, and avoid potential future costs by the company and its customers. Allowing the faster testing, installation and operation of other environmental improvements at P4 also decreases the total impact of the plant on the environment. Under the Cooperative Agreement these environmental improvements would be realized faster than what would otherwise occur within the present regulatory system.

Increased Community Dialog

Increasing the availability of information about P4's operations and environmental performance, and increasing dialog between the plant and the local community will have a positive impact on the facility. It will make staff more aware of the perceptions of the plant by the local community. This feedback will allow the plant to attempt to improve its performance in those areas that are most important to the community. The net result should be an increased understanding between the plant and the surrounding community.

Public Recognition

Wisconsin Electric should be the beneficiary of public recognition for the good environmental practices that it is proposing within the Cooperative Agreement. One of the legislative mandates in the 1997 bill was that the DNR, "recognize and reward facility owners and operators who have demonstrated excellence and leadership in environmental stewardship or pollution prevention through implementation of innovative measures."

Benefits to the Department of Natural Resources and State of Wisconsin

Improved Environmental Performance

The DNR's overall goal, as presented in its own mission statement, is to "protect and enhance…our air, land, and water". The proposed Cooperative Agreement for P4 supports that mission by increasing the overall environmental performance of the plant.

Additionally, the Cooperative Agreement will support other parts of the agency's mission, including, "providing a healthy, sustainable environment", and, "work with people to understand each others views."

Example for Other Facilities

Lessons learned from the P4 Cooperative Agreement and subsequent environmental improvements by the plant will serve as an example for other facilities. This will be beneficial for the DNR as it seeks performance improvements at these facilities, as well as for other companies as they consider their ability to seek alternative approaches to the existing regulatory system. Success within the P4 Cooperative Agreement may decrease the apprehension that other owners and operators have in entering into this or other voluntary programs that the DNR may be able to offer in the future.

Staff Learning

As much as other companies may need to explore new opportunities to work with the DNR in testing alternative regulatory approaches, DNR staff also will need to redefine their role. Staff may have to shift in order to become *facilitators* working with companies to move to a higher level of environmental performance that is outside the existing regulatory boundaries.

Positive results within the P4 Cooperative Agreement observed by DNR staff can reduce the hesitancy by others in both offering and responding to innovative solutions by Wisconsin Electric and other companies.

Reduced Administrative Costs

Another goal of the 1997 Legislature was to, "seek to reduce the time and money spent by government and owners and operators of facilities on paperwork, and other administrative tasks that do not result in benefits to the environment." By reducing and streamlining some of the monitoring, reporting, and permitting requirements, there should be a lessening of the administrative burden both to the DNR and Wisconsin Electric. Reduced labor and other administrative costs have a direct benefit back to Wisconsin taxpayers and Wisconsin Electric's customers.

Secondary Benefits

Transferability to Other Facilities

Specific lessons learned by this Cooperative Agreement can potentially be transferred to other Wisconsin Electric plants. More importantly, the results of this agreement also may be applicable to other utilities both within and outside of Wisconsin.

Given the increased public and regulatory scrutiny coal-fired utility plants are undergoing, the potential improvements in both energy efficiency and environmental performance may be critically important in how both the DNR and the EPA address these types of facilities in the future. Coal-fired power plants make up the backbone of the U.S. electric utility capacity.

Transferability to Other Regulatory Agencies and Programs

Since Earth Day in 1970, U.S. environmental protection programs have

become increasingly prescriptive, complex and administratively burdensome both to the owners of facilities and the regulatory agencies. As a result the agencies often are limited in financial and staff resources to focus on more critical problems or facilities that need attention or assistance in meeting baseline requirements.

The flexibility proposals by Wisconsin Electric offer an array of opportunities for the DNR and EPA to explore (on a pilot, and therefore learning basis) alternative approaches to protecting and enhancing environmental quality. These same approaches suggested by the company also address issues of maintaining economic competitiveness by improving energy efficiency. Finally, this approach also looks to increase the knowledge, input and involvement of the local community: Wisconsin Electric is suggesting a change from a process of regulatory permits to operate granted by a regulatory agency towards a process of seeking permission to operate from the local community.

Addressing Potential Questions and Concerns

During debate over the enabling legislation for the Cooperative Agreement Program, and subsequent program development by the DNR, some interested parties raised concerns over the ability of the program to protect both Wisconsin's environment and the communities where pilot facilities are located. Several of the questions and issues brought forward are presented in the following paragraphs. In each case, safeguards embodied in the program or steps to be taken by Wisconsin Electric to address these issues are outlined.

Compliance with Regulations

Entering into a Cooperative Agreement relieves neither Wisconsin Electric nor P4 staff from meeting all federal and state environmental regulations applicable to the plant. Environmental protection is not to be compromised by the Agreement. What is provided by an Agreement are potential opportunities for the company and agencies to explore alternative approaches to achieving the same or higher levels of environmental performance (and hence, environmental protection).

There are two safeguards present to assure compliance with the regulations. First, one of the key tenets of a Cooperative Agreement is a commitment to conduct a baseline environmental assessment, or compliance audit, early in the Agreement period. Second, the company must report the findings of this assessment to the DNR, including any violations found and how these nonconformances are going to be corrected within specific time periods outlined by the original legislation. These audit results also will be communicated to all interested stakeholders. Consequently, the overall assurance of compliance at P4 will be at a higher level than facilities not in the Cooperative Agreement.

Pollution Prevention

Pollution prevention is a cornerstone of the Cooperative Agreement Program, and facilities seeking entry into the program must demonstrate to the DNR and interested parties that it is achieving the basic requirements of the program. The enabling legislation requires that facility owners must:

- Assess the pollution that they cause
- Implement efficient and cost-effective pollution reduction strategies
- Seek to reduce the usage of natural resources
- Minimize discharges to air, land and water.

Wisconsin Electric's Cooperative Agreement proposal includes very specific actions to reduce the generation and discharge of pollution. Furthermore, steps taken by Wisconsin Electric to fulfill these requirements will be summarized in an annual report to the DNR and interested parties.

Measurable and Verifiable Environmental Performance and Goals

Another safeguard to assure both environmental compliance and proactive pollution prevention is the Cooperative Agreement Program's requirement that environmental performance be measurable and verifiable. Therefore, the performance of P4 under the terms of the Cooperative Agreement will not rest upon subjective judgement by Wisconsin Electric's

employees, but be quantitatively verifiable by an objective observer, including the DNR and interested members of the community.

Within the five years of the Agreement period, Wisconsin Electric will report on a range of environmental performance measures. Included will be several quantitative goals that the company is identifying as part of its participation in the program. This information will be made available to the agencies and interested parties.

Impact on Local Environment Quality

The first goal in the Cooperative Agreement enabling legislation states that any agreement shall, "provide at least the same level of protection of public health and the environment" as required by existing regulations. This goal, combined with the necessity to, 1) be compliant and, 2) communicate with the local community, assures the environment will be protected within the local community surrounding P4.

Information on the environmental performance of the plant will be available to the local community, and interested parties and stakeholders will have access to P4's management team to obtain information and seek answers to questions or concerns that may arise. This allows any issues to be communicated and acted upon directly and rapidly.

Public Access to Information

By entering into the Cooperative Agreement, Wisconsin Electric is committing to increase the availability of plant environmental performance information to the public. Specific steps the plant will take to improve this access includes:

- Informational meetings and forums
- Tours and open houses
- Mailings
- Internet information postings and electronic mailings
- Presentation and visits to interested groups
- Summaries to the DNR, which are subsequently available to the public.

Role of the DNR and EPA

The role of the DNR and EPA as regulatory agencies responsible for protecting the environment will not diminish under the terms of the Cooperative Agreement. Just as Wisconsin Electric is not relieved of being compliant, both agencies will still have a statutory requirement to enforce all applicable laws and regulations. Furthermore, the Cooperative Agreement and the flexibility proposals requested by Wisconsin Electric will not set a negative precedent or erode the underlying strength of Wisconsin's regulatory system.

Because the Cooperative Agreement Program is a pilot effort, both agencies will probably devote some higher degree of attention and resources in examining, reviewing and assessing the environmental compliance and overall performance of the plant. However, by entering into the Agreement, it is expected that administrative flexibility proposed by Wisconsin Electric will more than offset this higher oversight expended by the DNR and EPA.

Accountability and Enforcement

Very simply, and as stated above, Wisconsin Electric will still be accountable to both the agencies and the local communities for its environmental behavior. Complementing this accountability will be the continued enforcement powers of both regulatory agencies. Because of the increased scrutiny that the plant and the agencies will be under within this Agreement, accountability and enforcement will be enhanced.

Resources, Agency and Public Costs

Entering into and maintaining the Cooperative Agreement will initially require additional resources beyond that presently necessary under the current regulatory structure. This is a pilot program. As such there will be certain transactional costs (i.e., staff time) to develop, negotiate and fulfill some of the initial requirements of the Agreement (e.g., EMS, baseline review, progress reporting, etc.). These will be borne by both Wisconsin Electric, the DNR, and to a lesser degree the EPA. Within Wisconsin Electric it is expected that some additional effort by environmental technical staff may be necessary, as well as some members of the plant's leadership team. The DNR's Cooperative Environmental Assistance staff will need to devote resources to review, negotiate and monitor progress within the Agreement. However, and as stated above, it is expected that the administrative flexibility proposed by Wisconsin Electric will offset these transactional costs. As part of its annual reports to the DNR and interested parties, the company will compile the administrative savings realized by these proposals.

There also will be resources expended by interested citizens and local stakeholders. The level of effort expended by these groups and individuals will be dictated for the most part by individuals. Costs and benefits may be intangible in the short term, but may be realized by higher levels of citizen understanding of and interaction with the plant.

Role of Local Citizens and the Community

It is Wisconsin Electric's anticipation and hope that local citizens and the communities surrounding P4 assume a meaningful role in the Cooperative Agreement. Communication should be circular, with understandable and meaningful information being provided by Wisconsin Electric, and through involvement by interested parties, and direct feedback given to P4's leadership team. Wisconsin Electric will take several specific actions to prepare and make understandable information available to interested parties. Additionally, the plant's leadership team will make themselves available to meet with interested citizens and groups, as well as respond to specific inquiries, questions and concerns. [Additional information outlining Wisconsin Electric's planned approach to achieve this goal is contained in the section entitled *Community and Stakeholder Involvement* in this report.]

Regulatory Flexibility Versus Public Benefits

The primary goal of this pilot program is to explore the range of environmental regulatory flexibility while at the same time protecting and enhancing environmental quality. The program is not allowed to provide flexibility at the expense of rolling back environmental protection.

Just as important, the Cooperative Agreement should seek to provide for public benefits. Under the conditions proposed by Wisconsin Electric, several potential benefits are expected to occur, including:

- Reduced emissions per unit of electricity generated
- More efficient generation
- Higher level of energy availability during critical demand periods (e.g., summer)
- Recovery of both energy and stored materials, with a consequent reduction in the extraction and use of other natural resources
- Reduced long-term risks to soil and groundwater
- Environmental research and development

- Increased understanding of P4 operations by the local community, and opportunities for feedback to the plant
- Reduced administrative costs by Wisconsin Electric and the regulatory agencies.

Incentives for Innovation

There are several incentives for innovation by Wisconsin Electric and the DNR. The most significant of these are reduced costs and potential emissions to the environment (and these are not mutually exclusive). Several of the flexibility proposals present opportunities where the plant can be operated more efficiently while maintaining or increasing environmental protection. These include:

- Rapidly testing (and potentially installing) new pollution control or monitoring technologies
- Reducing the regulatory transaction costs of installing new equipment or adopting new procedures
- Recovering and either re-combusting or marketing stored combustion by-products
- Automating parts of the plant's environmental monitoring and compliance assurance systems with the EMIS (environmental management information system)
- Testing and installing plant efficiency improvements that lower overall operating costs or increase availability and reliability.

Transferability to Others

Lessons learned within the P4 Cooperative Agreement could potentially be adopted at other Wisconsin Electric facilities, and at other utility or industrial plants within Wisconsin and elsewhere. By maintaining a dialogue with the DNR and interested stakeholders, as well as through the annual reports, the results of this Agreement will be made available for other facilities to examine, test, modify and potentially improve beyond what is learned within this pilot project.

PROPOSAL DETAILS

Commitments by Wisconsin Electric

Measurable Improvements in Environmental Performance

To quantitatively demonstrate the benefits of the actions proposed within the P4 Cooperative Agreement, Wisconsin Electric will report to the DNR and interested parties data and other information relating to the environmental performance of the plant. This information will be provided, at a minimum, in an annual environmental performance report. However, data may be released throughout each year of the Agreement, depending on the type and availability of such information.

Included in the environmental performance measures will be the following:

- Results and follow-up or corrective action resulting from plant audits
- Annual CEM monitor availability
- Annual air emission inventory
- Annual excess air emission inventory
- Average annual opacity of the plant's air emissions
- Summary of energy and materials obtained from recovered ash in landfills
- Administrative savings by both the company and the DNR
- Quantitative improvements resulting from supplier EMS audits.

In all cases, quantitative information will be sought for the reporting period and presented in comparison to baseline conditions before the period of the Cooperative Agreement. [Please see section XIV of the Agreement, *Measurement and Assessment*, for other performance to be reported.]

Pollution Prevention

A review of pollution prevention activities will be conducted as part of the baseline review of the plant under the Cooperative Agreement. The results of this review will serve as the baseline for the remainder of the Agreement.

Specific items that will be evaluated, tracked and reported will include:

- Percent beneficial use of P4 combustion by-products (i.e., bottom and fly ash commercially sold rather than being placed in a landfill)
- Volume of combustion by-products removed from company landfills for re-combustion or other beneficial use
- Volume of hazardous waste generated by the plant
- Volume of used oil and other lubricants used by the plant
- Volume of scrap metal (both ferrous and non-ferrous) recycled by the plant
- Volume of recyclable paper, cardboard and packaging recycled

Summaries of this information will be tracked on an annual basis.

In addition, P2 policies and practices will be incorporated into the general environmental awareness training provided to plant employees.

Environmental Management System

Pleasant Prairie Power Plant already has a robust environmental program focusing on complying with all necessary laws, regulations and permits relevant to the

operation of the plant. As part of the Cooperative Agreement, the plant will align its environmental programs with the ISO 14001 international EMS standard.

To assure conformance to the standard, an initial gap analysis will be conducted to identify any areas of P4's operation that need revision or improvement. This analysis will be conducted by a registered EMS auditor, and the results will be made available to interested parties.

Within one year of signing the Cooperative Agreement, the plant will make available the framework documentation of the its EMS. This document will include the following sections as per the 14001 standard.

- Environmental policy
- Identification of environmental aspects of plant operation and potentially significant impacts
- Listing of environmental legal and regulatory requirements
- Identification of environmental objectives and targets
- Environmental management programs
- Structure and responsibility
- Employee training and awareness
- Communication
- EMS documentation
- Environmental document control
- Emergency preparedness and response
- Checking and corrective action
- Nonconformance, and corrective and preventive action
- Records
- EMS audits
- Senior management review

EMS documentation will be available to the DNR and interested parties.

Baseline Review

A baseline compliance review (i.e., audit) will be conducted by Wisconsin Electric within six months of executing the Agreement. The focus of this review will include the following:

1. Air quality
   - Title V permit
   - Acid rain provisions of the Clean Air Act
   - Continuous emission monitoring systems (CEMs)
   - Chlorinated fluorocarbons (CFC refrigerants)
2. Water quality
   - Wisconsin Pollution Discharge Elimination System (WPDES) permit
   - Stormwater management
3. Solid waste management
   - Ash landfill solid waste permit
   - Hazardous waste
   - Recycling
4. Emergency planning and public reporting
   - Spill prevention control and countermeasures (SPCC) plan
   - Community right-to-know
   - Risk management planning
   - Toxic release inventory (TRI)

The audit will be conducted using protocols specific to each of the above areas. Results of the audit will be summarized and presented to the DNR and interested parties. An action plan for any compliance issues will be developed and communicated as well.

Environmental Management Information System

Wisconsin Electric will install an EMIS to support the EMS at P4. This commitment is beyond the baseline requirements of the Cooperative Agreement Program. [Additional information was provided in the section above entitled, *Environmental Management Information System*.]

Mercury Demonstration Testing

Testing to determine the potential presence and form of mercury in exhaust gases will be conducted at P4. This commitment is beyond the baseline requirements of the Cooperative Agreement Program. [Additional information was provided in the section above entitled, *Mercury Demonstration Testing and Research*.][9]

Continuous Particulate Matter Monitor Study

Wisconsin Electric will work with multiple equipment manufacturers and EPRI to evaluate the performance of a new generation of continuous particulate matter monitors. This is to further the knowledge and technology associated with these monitors in anticipation of their potential installation on major air sources.

Supplier EMS Audits

EMS audits of key suppliers that may present a risk to the employees, plant, the surrounding communities and the environment will be conducted.[10] This commitment is beyond the requirements of the Program. [Additional information was provided in the section above entitled, *Supplier EMS Audits*.]

Reporting Performance Measures

Wisconsin Electric has identified several performance measures that it will report to the DNR and interested parties. Some of these measures were identified in the section above entitled, *Measurable Improvements in Environmental Performance*. Additional performance measures also are identified in the language of the proposed Cooperative Agreement. Feedback from outside stakeholders and interested parties also may identify other environmental parameters that can be tracked and reported.

A summary of the commitments that Wisconsin Electric is making in accordance with the Cooperative Agreement legislation is presented in Appendix A, Figure 1. Those commitments that the company is making beyond the baseline requirements to further enhance environmental performance are illustrated in Appendix A, Figure 2.

Flexibility Requested

Wisconsin Electric is seeking flexibility in four key areas:

- Alternative monitoring and enhanced corrective action
- Reduced reporting and decreased administrative expenses
- Permit streamlining
- Coal combustion by-product utilization for fuel and other commercial uses.

Each of these are described in more detail in the following sections.

Alternative Monitoring and Enhanced Corrective Action

Staff at P4 presently collect numerous types and a significant volume of information that do not directly reflect or contribute to superior environmental performance. Much of this data collection is specifically required by the P4 renewable operating permit regulating air quality. However, close

[9] Initial mercury demonstration testing was initiated during the week of February 21, 2000, and illustrates a good faith effort by Wisconsin Electric to pursue this research in advance of signing the Cooperative Agreement. DNR staff were invited to observe this testing done by an independent consultant.

[10] Because of the business sensitivity of what may be identified in these supplier audits, only specific summary information related to environmental improvements will be made available to the DNR and interested parties. WE will identify to the suppliers that in the event that environmental compliance issues are identified by these EMS audits, it will be the supplier's responsibility to report these to the DNR.

review of some of these monitoring requirements has resulted in identifying several monitoring activities that could be modified, reduced, or supplanted by enhanced corrective action. These would reduce both operating costs for WE and potential administrative costs for the DNR.

ESP Monitoring and Data Collection

Plant staff are presently required by the Title V air permit to collect several hundred data readings from the two electrostatic precipitators (ESP) each day. These readings, taken once per shift, include primary and secondary voltage, primary and secondary current, and spark rate. These data are manually read and recorded from each of the individual precipitator sets in the ESP. Because P4 is a baseload plant and operates on an almost steady and continual basis for at least 11 months each year, these readings are generally steady state. However, the plant expends almost one full time equivalent staff person per year collecting and recording these data, most of which are filed in the plant files without any need for taking additional preventive or corrective action. These data are not required to be submitted to the DNR. With the occasional exception when a localized section of the ESP has a physical failure, there is no significant change in the readings or any requirement to take action. If there is a significant failure or upset within the ESP, this is usually observed by an increase in stack opacity (an indirect indicator of ESP efficiency, and which is also regulated by the air permit). Because the plant has a 20 percent opacity limit, any significant increase in opacity is usually accompanied by the control operators taking action to reduce opacity, including reducing plant load (i.e., generating capacity) if necessary.[11] (The plant operators also are authorized to take a unit of the plant out of service if necessary to maintain compliance to the air permit and all applicable regulations.)

Consequently, Wisconsin Electric is proposing that the collection of the ESP voltage, current, and spark rate data be discontinued. In lieu of this data collection, the company is proposing the following enhanced corrective actions be substituted.

- Examining and taking any necessary corrective action when the daily average opacity exceeds 10 percent.
- Taking corrective action when the six minute average opacity exceeds 17 percent.
- The company also commits to an average annual opacity limit of 18 percent the first year of the Cooperative Agreement.
- Evaluate and potentially adjust all three of these above levels after one year under the Cooperative Agreement.

All corrective action in response to exceeding either the daily or six minute averages will be documented in the plant's logs. These logs are available for inspection by the DNR.

The environmental benefit of this proposal is that corrective action would be taken for opacity levels less than the existing 20 percent limit in the permit. Over time it is anticipated that these corrective actions will result in a better root cause analysis being done when these lower opacity limits are exceeded, and consequently the frequency and level of such exceedances will decrease over time.

Annual Instrument Calibration

The P4 Title V permit presently requires the plant to calibrate all pollution control equipment annually. This generally follows the tradition of power plants going out of service for an annual outage. Many of the air pollution control devices (and

[11] Actual particulate emissions from the two units at the plant are presently at 28 and 14 percent of the allowable emissions, for Units 1 and 2 respectively, as regulated by the Title V air quality permit.

accompanying instrumentation) can only be safely or fully examined and calibrated when they are out of service.

However, with newer equipment and refined operating and maintenance techniques, P4 does not always require an outage on the traditional 12 month schedule. More routinely, the plant can go 16 to 18 months between major outages. By keeping the plant in service longer, the plant's overall availability is increased, and the efficiencies of the plant are realized by the customers. As now written, the Title V air permit requirement for an annual calibration of the air pollution control equipment forces the plant into a shutdown mode for no other reason than to meet this permit requirement. Furthermore, past calibration history at P4 has indicated that generally no significant instrumentation changes need to be made during these calibrations.

Therefore, Wisconsin Electric is requesting that the requirement for annual air pollution control equipment calibration be modified from once every 12 months to periods when the plant is out of service for a major scheduled outage, or in accordance with good engineering practice. At no time would this period exceed 24 months. Documentation of these calibrations would occur, including any necessary adjustments.

Coal and Ash Dust Collector Data Collection

At various points within the P4 facility, coal and ash materials are transferred from one point to another. Each of these transfer points has the potential to release dust. More importantly from a safety standpoint, these same locations present a fire and explosion risk if dust or fine coal is released and present in the atmosphere. To control the presence of these materials in the atmosphere, the plant has several small baghouse units to collect any fugitive particulate materials in the air. Some of these operate only when ash or coal is being actively transferred.

P4 staff have traditionally checked the condition and operation of these baghouse units at least once per shift as part of required safety and operating rounds made at the plant (i.e., to reduce the risk of fire or explosion). These checks have been done since the plant was put into service in the 1980's.

Under the requirements of the Title V air quality permit, beginning in 1998 the plant was required to alarm and record the pressure drop across these baghouse units when they differential pressure drops below acceptable levels. While this does more formally document what had been done in the past, it adds no value towards improving the environment beyond what had been done before, and requires additional administrative documentation and recordkeeping requirements.

As an alternative to these once per shift inspections and documentation, Wisconsin Electric is proposing to replace this requirement with the following:

- Daily inspections of these baghouses in the same manner as was done prior to the requirements of the Title V permit initiated in 1998.
- A pressure drop alarm in the plant control room that indicates when the pressure drop across the baghouse is less than specifications.
- Documented corrective action in the event of a pressure drop of less than the allowable limit across the baghouse units.

Documentation will be made of all alarms in the control room and any corrective actions taken within the baghouse units. This documentation will be maintained in the plant operating logs.

Fugitive Dust Monitoring Recordkeeping

Because of the large volume of coal and combustion by-products (e.g., bottom and fly ash) that are handled and stored at P4, fugitive dust control both on and off the site is a key environmental activity. Neighboring facilities, including employee parking areas, are only located a few hundred feet from potential fugitive dust sources such as the coal pile, the rail car dumper building, and the ash storage warehouse. Consequently, plant staff have always been trained to be observant of conditions that may generate fugitive dust, and are both required and authorized to take immediate corrective action if such conditions occur. This is done not only to maintain compliance with the DNR's general air quality regulations, but more importantly to be a good neighbor to surrounding facilities.[12]

The initiation of the Title V permit in 1998 added an administrative requirement that formal recordkeeping be maintained for fugitive dust control practices and precautions. These records are collected and maintained at the plant, but are not submitted to the DNR. They are available for inspection by the agency.

Rather than have this recordkeeping requirement, the plant is requesting that it be allowed to address the potential for fugitive dust control with the following more direct and proactive approaches:

- Shift and routine operational inspections of the coal pile and other potential fugitive dust sources
- Good engineering practices to prevent or minimize fugitive dust
- Enhanced dust control techniques associated with plant property housekeeping and materials handling (e.g., watering and misting, dust suppressants, coal encrusting agents, etc.).

Employee training on good environmental practices to prevent and minimize fugitive dust will be conducted, including enhanced dust control techniques. This training will be documented.

A summary of Wisconsin Electric's proposals for alternative monitoring and enhanced corrective action are presented in Appendix A, Figure 3.

Reduced Reporting and Decreased Administrative Expenses

Several of the current documentation, reporting and recordkeeping requirements add a significant administrative burden to P4 staff, Wisconsin Electric environmental staff, and DNR staff. Several of the currently required activities are repetitive, with submittals both throughout the year, as well as annual summary documentation or certification also being provided to the agencies.

Wisconsin Electric is proposing several changes in these administrative activities that do not directly benefit the environment, or prompt preventive and corrective action by plant staff. Consequently, it can be argued that they do not add value, and often times are the source of administrative burden both to the regulated and the regulator.

Quarterly CEM Data Submittal

The plant presently operates continuous emission monitors (CEM) that record air emissions from the stack. These compounds include sulfur dioxide, nitrogen oxides, carbon dioxide, as well as opacity. Measurements of these compounds are made continuously and are recorded electronically

[12] The majority of the neighboring facilities surrounding the P4 plant have actually been located there due to the efforts of Wispark, another Wisconsin Energy Corporation company.

in the plants computer system. Several thousand data points are recorded everyday, and are subsequently reviewed, summarized and submitted to the EPA quarterly. The submittal of this quarterly data summary does not have a direct effect on the environmental performance of the plant. Any data collected during the quarter that would have been outside of normal operating boundaries (or the compliance limits of the Title V air permit) would have been previously addressed at the time of the operating excursion.

Therefore, to reduce this administrative burden both to Wisconsin Electric and the agency, the company is suggesting the following alternative actions:

- Submitting semi-annual rather than quarterly CEM summaries, thus reducing this administrative cost to both parties by half
- Notifying the DNR whenever the monthly CEM monitor availability drops below 98 percent. This would be accompanied by corrective action and/or maintenance, and this would also be documented
- Making an alternative longer term commitment on CEM monitor availability. [See the next section below entitled *Continuous Emission Monitor Availability and Performance*]

CEM/COM Monitor Availability and Performance

One of the key factors in tracking and responding to changes in environmental performance is monitor availability. Because the air quality CEM (continuous emission monitors) and COM (continuous opacity monitors) units are such a critical component to providing the plant staff real-time information on boiler and air quality performance, the EPA has promulgated guidance that requires that the CEM and COM monitors be available at least 95 percent of the time. Past operating history of these monitors at the plant has indicated that they are at levels exceeding 95 percent of the time when the plant is operating.

In lieu of the 95 percent availability limit suggested by the EPA, Wisconsin Electric is recommending that the availability goal for the CEM monitors be >97 percent on the previous 8760 operating hours. The availability goal of the COM system would be 97 percent, based on each calendar quarter.

Quarterly Excess Emission Reporting

Under existing permit and regulatory requirements, Wisconsin Electric must submit quarterly excess emission reports on air quality to the DNR. These reports catalog any air quality emission exceedances during the previous quarter, including the probable cause and any corrective action taken by plant staff. Similar to the CEM quarterly reports, these are summaries of past events and actions taken in response to these events. However, they are not forward-looking nor does their preparation and submittal result in an immediate corrective action. Any effective corrective action will have taken place at or immediately following an exceedance. And, like the CEM reports, the actual preparation of these reports does not enhance environmental quality or add value, but does increase administrative costs.

When an opacity exceedance occurs, the details surrounding that event (i.e., time, cause, duration and follow-up action) are reported to the DNR within one business day. Quarterly summaries add not benefit over semi-annual or annual reports.

Examination of past operating records for the plant indicate that most excess emissions reported in the past have been related to opacity exceedances above the 20 percent opacity limit. These events, when they do occur, are generally related to the

performance of the electrostatic precipitators. As proposed above, Wisconsin Electric is committing to taking enhanced corrective action in the event that opacity exceedances occur within the Cooperative Agreement. [See the section entitled *ESP Monitoring and Data Collection* above.]

Consequently, Wisconsin Electric is proposing that the existing requirement to submit quarterly excess emission reports be substituted with the following commitments.

- Notifying the DNR within 24 hours of an air quality exceedance, followed by an electronic mail notification
- An annual emission summary to the DNR.
- Submittal of an annual excess emission summary concurrent with the annual Title V air quality certification.

This change in reporting will result in measurable administrative savings to P4 and DNR staff.

Annual and Semi-Annual Title V Reports and Certification

Under the present requirements of the Title V air quality renewable operating permit, Wisconsin Electric must submit, 1) a semi-annual monitoring status report, and 2) an annual certification report. The annual report is a formal legal certification by Wisconsin Electric's management that the plant has been in compliance during the year. Any exceptions to full compliance must be noted.

Similar to other submittals made during the year, semi-annual monitoring status report does not improve environmental quality, but does increase administrative and recordkeeping costs. Therefore, the company is requesting that the semi-annual report not be submitted. Rather, the annual certification report would be provided after the end of permit year. This would be submitted concurrent with the excess emission report described in the previous section.

Annual Discharge Monitoring Reports

The plant presently has a Wisconsin Pollution Discharge Elimination System (WPDES) permit issued by the DNR which authorizes the plant to discharge treated wastewaters and cooling water to Lake Michigan. Outlined in this permit are strict limits on discharge concentrations of several key chemical constituents, as well as procedural requirements pertaining to sampling, analysis, recordkeeping and reporting.

One specific requirement of this permit is that the plant must submit to the DNR a monthly discharge monitoring report (DMR) summarizing the daily and weekly results of monitoring during the previous month. Similar to some of the air quality submittals outlined above, this summary report almost never prompts any subsequent follow-up corrective or preventive action by either the plant or DNR. No direct impact on environmental quality results from the submission of the monthly DMR.

In lieu of the monthly DMRs, Wisconsin Electric is requesting that it be allowed to submit an annual summary DMR to the DNR after the end of each year. The summary DMR would include the range of constituent values for the year (e.g., high, low, average), and list any exceedances and resulting corrective action. This would be submitted within 45 days of the end of the previous year and would contain the same data as required by the existing reports.

To assure that water quality is not compromised during this annual reporting period, the company is committing to the following:

- Notifying the DNR within 24 hours after becoming aware of any

wastewater exceedance, followed by an electronic mail notification
- Immediate corrective action to address any upset condition or exceedance. This would be accompanied by documentation in the plant files of the conditions contributing to the exceedance or upset, and any corrective action taken by the plant
- Submittal of the annual DMR to the DNR.

Stormwater Permit Classification

At the present time the plant has a Tier 2 General WPDES Stormwater Permit governing the management of stormwater at the plant site.

A Tier 2 permit requires monitoring and other actions by WE that are not justified given the existing stormwater collection and treatment that occurs on site. At the present time stormwater drainage from plant areas with the potential for significant material exposure is already routed to the plant's wastewater treatment facility. Discharges of treated waters (including stormwater) are included under the specific WPDES permit for the facility (described in the section immediately above). Runoff from other areas of the property does not require treatment and is routed directly to ditches and swales.

Therefore, Wisconsin Electric is requesting that the plant's stormwater permit be switched from a Tier 2 to Tier 3 classification. As a Tier 3 facility the plant would continue its existing stormwater prevention practices and notify the DNR in the event of any changes at the facility that could result in additional or significant stormwater contamination.

Annual Evaluation of Monitoring, Documentation and Reporting

Wisconsin Electric is requesting that it be allowed the opportunity to evaluate all environmental monitoring, documentation and reporting requirements on an annual basis and submit any suggested improvements to the DNR. This would evaluate lessons learned during the previous year, potentially seeking improvements or further modifications that would reduce administrative burdens and staff costs for both the plant and the DNR.

A summary of Wisconsin Electric's proposals for reduced reporting and decreased administrative expenses is illustrated in Appendix A, Figure 4.

Permit Streamlining

One of the major challenges faced by Wisconsin businesses is the length of time required by governmental reviews and approvals. Environmental related decisions are no exception. The complexity of the existing body of regulations combined with the technological complexity of production processes and environmental pollution control mechanisms have resulted in an ever increasing amount of time required to obtain approvals for facility expansions, efficiency improvements, or even more effective pollution control equipment. Consequently, businesses often are stymied in adjusting to changing market and technological factors, including those that may improve environmental performance.

Wisconsin Electric understands the cautious approach that must be taken to preserve and improve environmental quality. This is critically true with respect to a large coal-fired power plant such as P4. However, the company also is legally bound to be in compliance and not take any action that would degrade the environment or threaten human health. The company must act responsibly and be answerable to any consequences stemming from its actions (or lack of action).

Therefore, Wisconsin Electric is proposing several permit streamlining and related flexibility approaches pertaining to improving plant performance and the testing and installation of new equipment, including pollution control equipment. The requested flexibility can be divided into four categories:

1. Pre-construction notification and waiver
2. Permit streamlining for minor physical or operational changes
3. Reduced technical information submittal
4. Reduced new technology review.

Each of these requested flexibility options acknowledge the specific and general exemptions in NR 406 (as well as NR 407 requirements), and are focused on minor actions to improve plant efficiency, pollution control, or both.

These streamlining proposals are all closely interrelated and are described in more detail in the following four sub-sections.[13]

Pre-Construction Notification and Waiver

Under the existing requirements of NR 406, Wisconsin Electric must submit detailed information to the DNR prior to any construction, process or operating changes at P4. In the case where a construction permit is required, the review and approval period prior to obtaining such approvals under this process may take several months and require multiple submittals, reviews, and meetings.[14] Much of this effort is focused on assuring that all regulatory limits and other administrative requirements are being met. In almost all cases the technical specifications that directly relate to protecting the environment do not significantly change.

Operating under the unchanging premise that Wisconsin Electric is held legally responsible for maintaining the overall environmental compliance of the plant, we are requesting that P4 be allowed to waive the pre-construction notice period for all process or energy improvements at the plant as long as such changes maintain plant emissions below the maximum theoretical emissions increase defined in NR 406. The company would be responsible for preparing, reviewing, and assuring that all process changes would maintain emissions at or below these pre-established levels. Compliance to these levels is demonstrated by the monitoring data collected, recorded and documented by the company.

Specifically, Wisconsin Electric would request a waiver in writing, accompanied by an outline of the analyses, design and documentation previously done by the company. The request for a waiver would be automatically approved 15 calendar days after receipt of the request, unless within the 15 calendar day period the request is denied in writing for cause by the DNR. Plant staff would maintain documentation of all technology and process reviews and analyses, design, construction and other information at the plant. Appropriate documentation and reviews would be completed before any changes were made. All of this information would be available for agency review.

[13] An example of the flexibility requested by Wisconsin Electric is one associated with the plant's loss of efficiency during the summer months when electricity generated by the plant is critical to maintaining availability and reliability of power to our customers. During the warm summer months the plant's generating capacity drops by as much as 32 MW due to decreased efficiency of the cooling water system. As a result other generating resources must be utilized that may not either be as efficient in energy conversion or have higher emission factors of key pollutants. One way to both improve efficiency and reduce regional air quality impacts is to make efficiency improvements in the plants cooling water system to allow it to regain this potential 32 MW capacity.

[14] Due to the complicated nature of NR 406, Wisconsin Electric often applies for a construction permit in order to protect the company even though a permit is not required. In these cases a permit is not needed, but the company will delay the project until the DNR concludes its determination (which is usually the same as WE's) that no permit is required.

Permit Streamlining for Minor Physical or Operational Changes

Continuing technological innovations and the availability of such technologies in the marketplace offer Wisconsin Electric opportunities to make physical or operational changes that may improve plant operating efficiency, reduce the level of emissions per unit of electricity generated, or both.

Wisconsin Electric is requesting permit streamlining to improve its flexibility to make process and efficiency improvements at the plant without revisions of the Cooperative Agreement or the Title V air permit if such improvements do not result in emissions increases above those levels determined by NR 406. These changes, if done, would seek to increase the plant's efficiency in generating electricity that is subsequently delivered to the electrical transmission grid. These changes also may involve pollution control equipment, either improving the removal or pollution prevention efficiency of the existing equipment, or the testing or installation of new equipment. This will allow the company to make changes in the plant that will benefit the customer by maintaining (or possibly reducing) production costs, as well as decreasing the plant's impact on the surrounding environment.

Specifically, when approval for minor improvements is required, Wisconsin Electric will submit a request supported by appropriate documentation outlining the proposed change(s). Full documentation would be maintained by Wisconsin Electric and be available for both agency and public review. The DNR would notify Wisconsin Electric in writing of its approval or denial of the request within 30 days after receipt of the request for approval. This 30 day period could be extended another 15 days by the DNR with agreement by the Wisconsin Electric in order to address issues that would otherwise make the result in a denial of the request. If the requested action is subject to public notice requirements under state or federal law, then the DNR would publish the required notice within 30 days of receipt of the initial request. If a public hearing were required, the DNR would notify Wisconsin Electric in writing of its denial or approval within 10 calendar days after the conclusion of the public hearing.

The company will be responsible for maintaining emissions within those limits defined by the Title V permit or applicable regulations. All changes will be reviewed and approved by a licensed engineer employed by the company.

Plant staff will maintain documentation of all process improvements and will report such changes to the DNR in its annual report. Certification of compliance to all applicable requirements and limits will be done with the submittal of the annual Title V renewable operating permit certification described above. Additionally, the plant staff will document and report on any corrective actions necessary that may be potentially related to such improvements. Finally, Wisconsin Electric will provide a summary of all such process changes to the DNR at the end of the Cooperative Agreement such that these changes can be embodied in any subsequent permits or agreements that replace the proposed Cooperative Agreement.

Reduced Technical Information Submittal

With the proposed installation of any new technology or proposed process change at P4, Wisconsin Electric has been required to submit detailed technical information to the DNR for review. Similar to the pre-construction notification above, the formal assembly, submittal and review process may require several months. During the interim

no efficiency improvements or environmental benefits (i.e., reduced emissions) are realized.

Again, realizing that Wisconsin Electric is responsible for maintaining full compliance to all applicable limits, the company is requesting the flexibility of waiving the requirement to provide detailed technical information to the DNR on new environmental or energy efficiency improvements. Technology reviews will be done by company technical staff and engineers, consultants, or vendors providing equipment. As may be required by state or federal regulations, any and all applicable technology analyses shall be conducted and fully documented (e.g., BACT, MACT) by Wisconsin Electric. Any and all environmental and energy efficiency benefits also will be documented, and this information will be outlined in the annual report to the DNR.

DNR staff will be informed and invited to observe and offer input into these analyses, and Wisconsin Electric will consider this input.

Plant staff will maintain documentation of all appropriate technology reviews and analyses, design, construction, and operational information. All information otherwise submitted to the DNR for review will be maintained at the plant and be available for agency staff review. Summaries of such reviews and any subsequent improvements also will be presented to the community advisory panel and any interested parties.

Reduced New Technology Review

As described in previous sections above, Wisconsin Electric and the DNR are challenged with finding, examining, testing and possibly installing new emission control technologies. This is more critical in the area of air quality, and specifically are focused on issues of NOx (nitrogen oxides), CO_2 (carbon dioxide) and other greenhouse gases, fine particulates, mercury, and other potentially toxic compounds.

In order for the Wisconsin Electric (and other electric utilities in Wisconsin and elsewhere) to implement new technologies, the company must have the flexibility to review, examine, test and potentially install new technologies without lengthy agency examination periods or fear of penalties if tests are not fully successful. The ability to test, refine, and upgrade new technologies will enhance the installation of these new technologies sooner rather than later. The end result will be faster implementation and the consequent improvements to environmental quality as a result of pollution prevention and reduced emissions.

Consequently, similar to the previous three sub-sections, Wisconsin Electric is requesting the flexibility to waive the requirements to have the DNR conduct detailed technical reviews of any proposed new technologies for the plant. This would grant the company a site-specific testing waiver to examine and test new technologies at P4. The company shall remain responsible for the performance of any technologies and compliance to all applicable regulations and emission limits. In lieu of the DNR conducting a lengthy and detailed technical review, Wisconsin Electric staff, its consultants and vendors shall conduct a thorough engineering analysis of any technology prior to the final design and installation of any equipment. A summary of all testing and relevant findings and results would be provided to DNR on an annual basis. Plant staff will maintain full documentation of the results of such analyses, including any otherwise required by the regulations in the same manner as described above.

DNR staff will be informed and invited to observe and offer input to these reviews, and full documentation of these activities will be maintained at the plant. The results of any

technology reviews and installations will be summarized by Wisconsin Electric in its annual report to the DNR and interested parties.

Compliance Assurance Monitoring (CAM)

In 1997 the EPA promulgated rules outlining a compliance assurance monitoring, or CAM, program focused on further enhancing air quality monitoring by major sources such as P4. The concept of the CAM rules are to prevent potential emission excursions beyond existing permit or other regulatory limits, and to take formal preventive and corrective actions further assuring that over time the chance of such excursions decrease.

Wisconsin Electric believes that a robust EMS as proposed by the company under this Cooperative Agreement, supplemented by the formal EMIS program that would be implemented at P4, offers a program analogous to that required by the CAM rules. An ISO 14001-based EMS requires formal programs for monitoring, corrective and preventive actions for any nonconformances, documentation, periodic reviews, and follow up actions to modify or otherwise improve the total system. These are the same key tenets as required by the CAM rules.

Therefore, Wisconsin Electric is requesting the opportunity to more formally examine and compare our EMS and EMIS programs at P4 under this agreement with the CAM program requirements. This may result in potentially modifying the Agreement during the pilot period to address CAM.

Appendix A, Figure 5, illustrates the permit streamlining changes requested by the company.

Approval to Recover, Combust and Utilize Stored Ash

Wisconsin Electric has historically placed most of its combustion by-products (e.g., fly and bottom ash) into landfills. As described previously, the older boilers in other plants are not as efficient as P4, and as a result much of the ash in these landfills contains residual energy not released by the original combustion processes. Additionally, the coarser bottom ash and the self-cementing fly ash from P4, while not containing a significant energy content, is a very marketable inert aggregate material for use in construction, engineered fill, and pavement and foundation base applications. The beneficial reuse rules promulgated by the DNR promote the environmentally-sound beneficial use of these materials that in the past had been landfilled.

The company presently has permission to combust virgin ash (or ash never placed in a landfill) at P4 when it is mixed with coal. Ash from the Valley Power Plant and other company facilities is transported to P4 for reburning along with the normal P4 coal. Figure 6 in Appendix A illustrates the past and present management practices for these ash materials. The process for ash injection has been patented and is described in detail in Appendix B. Wisconsin Electric engineering and environmental professionals also have conducted a pilot project at the P4 landfill during 1998 to demonstrate the feasibility of recovering stored ash. This pilot project was done under the approval of the DNR and successfully demonstrated the ability to safely remove combustion by-products for other productive use while protecting the environment.

Therefore, Wisconsin Electric is requesting the following flexibility as it relates to ash stored in its landfills.

- Waive NR 500 Plan Modification for ash recovery provided WE takes a conservatively engineered recovery process without creating a nuisance (e.g., dust, surface water or groundwater contamination, etc.).

- Removal of combustion by-products from the P4 and other company ash landfills. These landfills are all combustion by-product monofills and have not received waste materials from other sources outside of the power plants.
- Energy recovery from recovered coal combustion by-product materials by re-combusting these materials at P4. This will both recover the stored energy in the ash and produce a marketable combustion by-product.[15]
- Recovery and utilization of suitable bottom ash materials for environmentally safe aggregate and engineered material applications.

The formal ash recovery process patent application is attached to this submittal as Appendix C, and addresses key issues associated with this flexibility proposal. This plan outlines the following:

- Ash removal, screening, handling and storage methods
- Ash sampling and analysis to assure quality control
- Environmental controls to prevent fugitive dust, stormwater runoff or infiltration of water contacting the ash from entering the groundwater.
- Maintenance of the integrity of the existing landfill materials not yet removed.
- Storage and handling (including combustion) of materials once they are removed from the landfill.

Any potential combustion changes , including emission factors, will be addressed by the existing Title V permit, applicable regulations, and the air emissions cap described earlier.

The process and benefits of Wisconsin Electric's coal combustion product recovery proposal are illustrated in Appendix A, Figure 7.

[15] During the past two years coal combustion by-product utilization at P4 has been at 100 percent.

Community and Stakeholder Involvement

Wisconsin Electric and the leadership team at P4 will improve the availability of information to the local community and seek to work with community leaders and other interested stakeholders in obtaining their input and feedback.[16]

The plant intends to form a community advisory panel (CAP) comprised of interested parties and other community members solicited by the plant. The advantage of the pane. is that it will provide a more formal mechanism for introducing information and seeking feedback on the plant's proposed environmental and efficiency improvements. Included in the groups that will be actively solicited for inclusion in the panel include the following.

- P4 management staff
- Local 2150 IBEW (plant represented staff)
- Local 317 Operating Engineers (plant represented staff)
- Village of Pleasant Prairie
- Pleasant Prairie Planning Commission
- Kenosha County
  -Office of the County Executive
  -Kenosha Board of Supervisors
  -Environmental Health Office
- Wisconsin DNR
  - Sturtevant Service Center
  - Milwaukee District Office
- Kenosha Chamber of Commerce
- Kenosha Area Development Corporation
- Local Emergency Planning Committee (LEPC)
- Kenosha News (local newspaper)
- Wisconsin Environmental Initiative
- Wisconsin Environmental Decade
- Chiwaukee Prairie Preservation Fund
- Indian Trails Academy (local school)
- Lakeshore Technical School (local school)
- Anthony Earl (former Governor and DNR Secretary)

In addition, involvement by local businesses and citizens also will be sought through initial mailings and newspaper announcements. Specific companies that either adjoin or are in close proximity to the plant will be informed of the Cooperative Agreement and invited to participate, including:

- Super Valu
- Fair Oaks Farms
- Central States Warehouse
- Genesis
- Rust Oleum
- Lawter.

Specific steps that Wisconsin Electric will take to provide information and seek input will include:

- Informational meetings and forums
- Tours and open houses
- Mailings
- Wisconsin Electric internet site, with a specific page devoted to the P4 Cooperative Agreement
- Presentations and visits to interested groups
- Annual summaries.

At a minimum information will be provided to the CAP and interested parties on a frequency of no less than every six months, and probably more frequently during the initial 12-18 months of the Agreement. [Additional information describing this process is contained in section VII of the proposed Cooperative Agreement attached.]

Wisconsin Electric will provide information to the DNR on the scope and progress of work with the CAP and interested parties. Adjustments to this activity will be made as necessary.

[16] Several of the actions (and resulting benefits) related to stakeholder involvement was previously described in the section entitled *Benefits for the Community and Stakeholders*.

A summary of Wisconsin Electric's stakeholder involvement activities is illustrated in Appendix A, Figure 8.